REPORT ON THE

OIL AND GAS SECTOR IN ECUADOR

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REPORT ON THE ECUADOR OIL AND GAS SECTOR

INTRODUCTION

The initiation of commercial oil production in 1970 dramatically altered the traditional structure of the Ecuador economy. Agriculture and in particular exports of banana, coffee and cocoa were the main source of national income. However, by 1988 this sector accounted for only 27 percent of export earnings, while the oil sector had soared to 70 percent of exports and 60 percent of total state revenues.

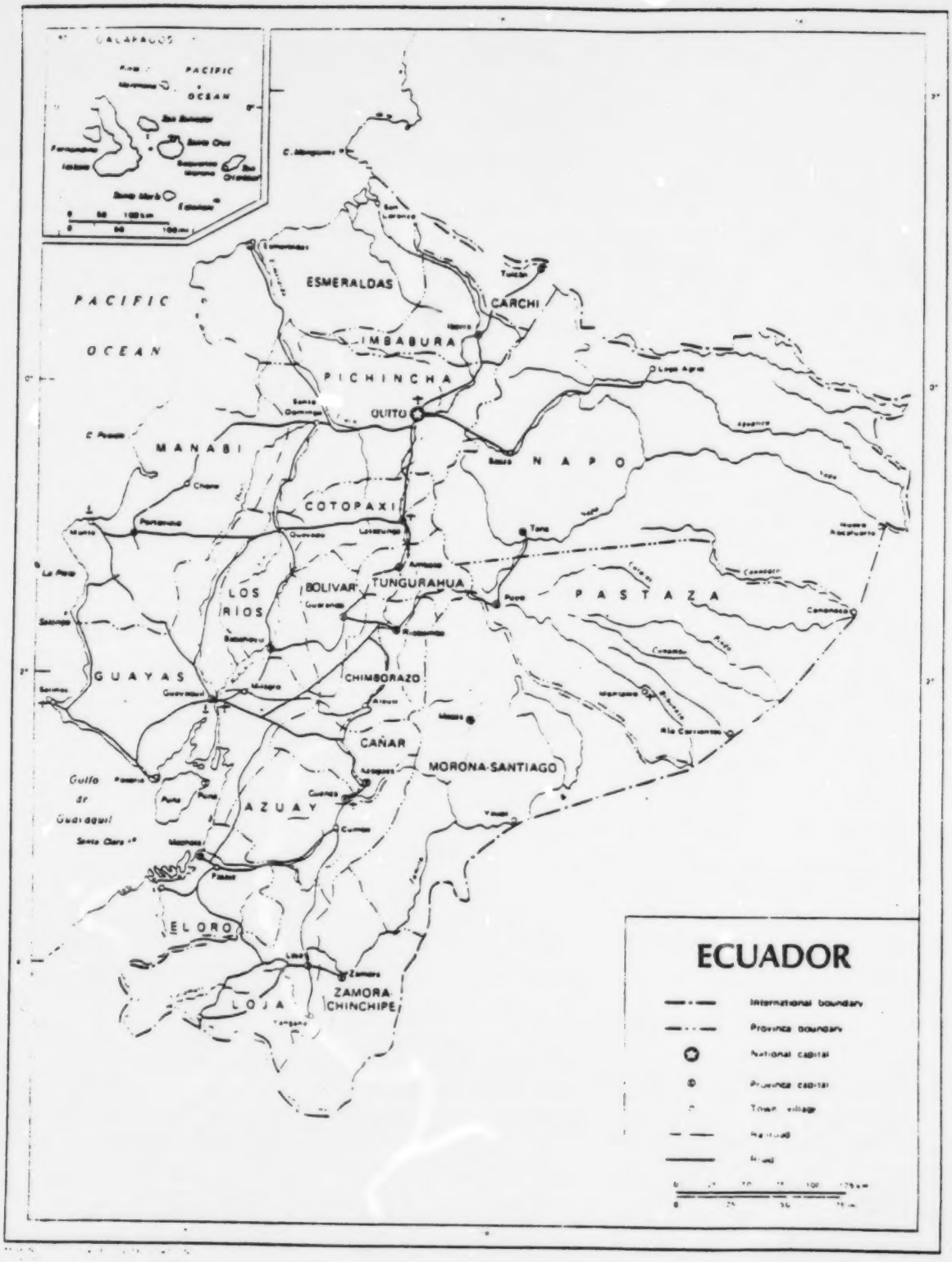
During the oil boom (1971-1980), GDP grew at nine percent annually. As a result, no sector is more important to the Ecuador economy nor to government finances than oil and gas. Royalties and transfers from the petroleum industry finance significant portions of state investment in infrastructure and social programs. The Ecuador Government therefore has concentrated on implementing policies to favour exploration, development and downstream linkages.

The objective of this report is to provide a convenient reference document on Ecuador's oil and gas industry for Canadians interested in pursuing commercial opportunities in this sector.

This report is divided into three sections: a brief overview of Ecuador and its current economic and political situation; a review of the oil and gas industry, recent developments, activities, key players and projects; and a section on "how to do business" in this sector.

The annexes to this report contain reference information, including sectoral statistics, names and addresses of companies and organizations active in this sector, and a list of potential agents for new entrants to the market.

This is the first edition of this report and has been prepared by the Canadian Consulate in Quito and the Commercial Division of the Canadian Embassy in Bogotá. All suggestions for improvements are welcome.


GALAPAGOS
PACIFIC
OCEAN
ESMERALDAS
CARCHI
IMBABURA
PICHINCHA
QUITO
PACIFIC
OCEAN
MANABI
NAPO
COTOPAXI
LOS
RIOS
BOLIVAR
TUNGURAHUA
PASTAZA
GUAYAS
CHIMBORAZO
CAÑAR
MORONA-SANTIAGO
Gulf
of
Guayaquil
AZUAY
ELORO
LOJA
ZAMORA
CHINCHIPE
ECUADOR
International boundary
Province boundary
National capital

ECUADOR IN A NUTSHELL

Ecuador is situated on the Pacific coast of South America and covers an area of 270,670 square kilometres, a little less than half the size of Alberta. One of the smallest countries in South America, Ecuador is bordered by Colombia to the north and Peru to the south. The Galapagos Islands located 1,100 km to the west in the Pacific Ocean also belong to Ecuador.

Two chains of the Andes Mountains bisect the country from north to south and thereby create three distinct geographical and climatic regions. The **Coast** (la Costa) consists of flat plains that rise gradually to the **Sierra**. This latter mountain region includes fertile valleys and plains as well as snow-covered mountains of over 4,500 metres, and represents about one-fourth of the country's total area. The tropical forests of the **Oriente** comprise one-half of Ecuador's total area and extend eastward from the slopes of the Andes to the Amazon valley. Except for petroleum production, most of this region remains undeveloped.

Ecuador's population was estimated at 9.65 million with an annual growth rate of 2.9 percent in 1986. **Quito**, population 1.2 million, is the nation's capital and the commercial centre of the highlands. **Guayaquil**, the country's largest city and principal port, has a population of almost two million and is the commercial and industrial centre of the coast. The next largest cities are Cuenca and Ambato with populations of 500,000 and 350,000 respectively.

Spanish is the official language of Ecuador although many business people and government officials possess a working knowledge of English or French.

GOVERNMENT AND POLITICS

Ecuador achieved its independence on May 24, 1822 as part of the confederation of Gran Colombia with Colombia, Panama and Venezuela. In 1830 it became an independent republic.

Ecuador is divided for administrative purposes into provinces, counties and parishes. At the national level, elected governments have alternated with military regimes (the military left power in 1979). The constitution provides for a president, a single-chamber Congress, and a judicial branch.

The current President of Ecuador, Dr. Rodrigo Borja, was elected by popular vote for a four-year term, and assumed office in August 1988. His centre-left party, Izquierda Democrática, controls Congress through a coalition with other parties. Ministers and senior civil servants are appointed by the President.

THE ECONOMY

During the oil boom and the coffee and banana bonanzas of the 1970s, GDP grew at nine percent annually. By the early 1980s the economy began to deteriorate as coffee and oil prices declined and the agriculture sector suffered from adverse weather conditions. Ecuador entered a period of external debt reschedulings, high inflation, and repeated devaluation of the Sucre, the national currency. After a slight recovery in 1984-1986, the economy contracted by 5.5 percent in 1987 following a fall in oil prices and earthquake damage to the pipeline, which halted oil exports and production for six months. The country entered a recession with further devaluations, inflation in excess of 80 percent, and ongoing external debt problems. GDP recovered by 12.8 percent in 1988, but was stagnant in 1989.

The Borja government initiated an emergency economic adjustment and recovery programme which emphasized more realistic exchange and interest rates, public deficit reduction, and debt reschedulings. Its objectives are to gradually restore GDP growth to about three percent during the period 1990-92, while lowering inflation to 30 percent.

BASIC ECONOMIC INDICATORS:

Gross Domestic Product 1986	US $12.08 bn
Per Capita GDP 1986	US $1,160
Inflation Rate 1989	estimated 60%

ORIGINS OF GDP 1987

Agriculture	17.8%
Manufacturing	17.6
Petroleum & mining	7.6
Services	50.2
Others	6.8
Total	**100.0%**

COMPONENTS OF GDP 1987

Private consumption	71.0%
Government consumption	12.8
Gross fixed investment	16.9
Change in stocks	0.1
Exports	22.4
Imports	-23.2
Total	**100.0%**

PRINCIPAL EXPORTS 1988*

	US$ mn fob
Crude petroleum	875
Shrimp	387
Bananas	298
Coffee	169
Cocoa	126
Total including others	**2,192**

PRINCIPAL IMPORTS 1988*

	US$ mn cif
Inputs for industry	707
Capital goods	404
Transport equipment	249
Nondurable consumer goods	101
Inputs for agriculture	62
Total incl others	**1,714**

SECTOR OVERVIEW

Ecuador has been self-sufficient throughout its oil producing history, and a net exporter from 1928 to 1957 and since the early 1970s. All oil extracted before 1967 came from wells along the Pacific coast west of Guayaquil, but the oil industry did not really take off in Ecuador until the late sixties with large new discoveries in the interior on the eastern slopes of the Andes.

The two main events which mark the beginning of the oil boom in Ecuador both date from 1970: the opening of the Transecuadorian pipeline and the creation of the state oil company, CEPE. CEPE (Corporación Estatal Petrolera Ecuatoriana) was created by the Ecuadorian government by means of the Hydrocarbons Law of 1971, to regulate all hydrocarbon related activities in the country.

CEPE became active in exploration in the Oriente, developing new fields in the Aguarico Rise, the richest area of production. A seismic program of more than 9,000 kms in the 1970s produced 30 leads, thirteen of which were drilled. This led to eight discoveries, some of which have entered into commercial production. It is estimated that these discoveries could add in excess of 250 million barrels to current reserves.

Ecuador's proven reserves currently stand at between 1.2 and 1.5 billion barrels (natural gas reserves are 140 billion cubic feet). Opinions about the future of the industry range from a pessimistic forecast by the National Hydrocarbons Directorate (NHD), a government agency which supervises the sector, to a more encouraging conclusion from a World Bank study.

According to the NHD report, Ecuador will be able to export oil for only seven more years at current rates of production and barring major new discoveries. It predicts a decline in production from the present 314,000 barrels per day (bpd) to only 200,000 bpd by the year 2000. This would lead to a sharp reduction in exports if internal consumption continues to rise from the 1986 level of 112,478 bpd. The study suggests that simply to maintain the present production level, Ecuador would need to invest to the year 2000 about US $720 million, or US $60 million per year.

A brighter outlook is provided in a recent World Bank study, which suggests that Ecuador will be able to continue to export oil beyond the year 2000. This conclusion is based on the assumption that internal consumption will be limited through price increases and that as yet unexploited fields will come onstream. In order to increase reserves to the figures projected in this study, Ecuador would need to invest US $140 million annually until the year 2000. In this way, production could be raised by 10,000 bpd in 1990, by 65,000 during 1995 (peak production), and by 35,000 bpd in 2000.

At present Ecuador, as an OPEC member, has a production quota of 273,000 bpd for 1990. In reality, oil production generally has exceeded the OPEC quota by 20,000 to 50,000 bpd.

The bulk of Ecuador's domestic production comes from the PETROECUADOR (CEPE)-Texaco consortium block, which produces about 235,000 bpd from 12 different fields. About 50 percent of this total comes from Shushufindi field and 30 percent from the Sacha field. CEPCO provides 3,700 bpd while the coastal fields produce 1,200 bpd. PETROECUADOR (CEPE) recently made discoveries in its own blocks and has the potential to produce an additional 45,000 bpd from these areas in the near future.

> From 1972 until December 1988, Ecuador produced 1,309 million barrels of oil, an average of 217,000 barrels per day.

BRITISH PETROLEUM and CONOCO also have made successful discoveries of oil since 1985. Their production by field during 1988 is shown below:

CONOCO

Well	Production (bpd)
AMO	1,115
BOGI	2,906
DAIMI 1	4,097
AMO 2	5,550
TOTAL PRODUCTION:	**13,668**

BRITISH PETROLEUM

Well	Production (bpd)
PAYAMINO 1	2,596
OSO 1	240
PAYAMINO 3	953
JAGUAR 1	256
TOTAL PRODUCTION:	**4,045**

British Petroleum decided to withdraw from Ecuador in October 1989 and sold its exploration rights to Oryx Energy Company.

THE STATE OIL COMPANY: PETROECUADOR (CEPE)

The Ecuador State Petroleum Company (CEPE) was created in June of 1972 to assume responsibility for the national petroleum industry. Ecuadorian law stipulates that all hydrocarbon reserves found within the country's territory belong to the state, and the state oil company shall explore and exploit such reserves, directly or through association and service contracts with other national or foreign companies.

In September 1989, Congress approved a new law to reorganize the company and to improve its efficiency and autonomy. The law took effect at the beginning of January 1990, when CEPE was rebaptized PETROECUADOR. PETROECUADOR now operates as a holding company for three permanent and three temporary subsidiaries which focus on:

(1) exploration and production
(2) industrialization and refining
(3) marketing and transportation

PETROECUADOR will be permitted to recuperate its production costs and to retain 10 percent of the proceeds from oil export sales for its investment program. For the 1989-95 period, its budget will be 657.69 billion sucres. Annual budgets will increase from US $743 million in 1990 to US $1.9 billion in 1993. In 1989, 62 percent of CEPE investment spending was destined to exploration and production; 22 percent to cover its 62.5 percent share of the Texaco production and pipeline consortium; 9 percent for industrialization; 8 percent for transport and storage; and 7 percent for support services.

The PETROECUADOR board of directors is made up of the Minister of Energy and Mines, the Minister of Finance, the Minister of Industry and Commerce, the Commander in Chief of the Armed Forces, the Manager of the Central Bank, the Planning Secretary of the National Development Council (CONADE), the General Manager of PETROECUADOR, a representative of the Presidency of Ecuador and a representative of the company's workers. The board names the operating council which is responsible for corporate finances, planning and coordination. Each subsidiary also has its own board of directors.

In 1989 PETROECUADOR took over operation of the main oil export pipeline (already owned by the state but operated by Texaco since 1986) and the management of the Anglo refinery. In 1990 full control of the oil fields of the CEPE-Texaco consortium reverts to PETROECUADOR as well as the Repetrol refinery. Three temporary subsidiaries have been created to assume responsibility for these activities until they can be merged with the permanent subsidiaries of PETROECUADOR.

PETROECUADOR ORGANIZATION

PETROECUADOR: PETROECUADOR is the parent holding company responsible for financing, planning, coordinating and supervising the activities of its three permanent and three temporary subsidiaries. It will centralize most research and legal functions of its subsidiaries. A special unit has been created to deal with environmental protection issues. Training, however, is decentralized.

PERMANENT SUBSIDIARIES:

A. PETROPRODUCCION

Exploration and production are the responsibilities of this subsidiary. Immediate priorities are to undertake at least 800 km of seismic lines in 1990 (3,400 by 1994), to drill a series of new exploration wells, to incorporate five new fields into production, to improve pipeline pumping systems, and to obtain assistance in the area of biostratography. Over time this subsidiary will absorb PETROAMAZONAS.

B. PETROINDUSTRIAL

This subsidiary is responsible for downstream linkages and refining in particular. When it eventually merges with PETROPENINSULA, it will account for a total national refining capacity of 147,000 bpd at the refineries of Esmeraldas (built in 1975, 90,000 bpd), Amazonas (10,000 bpd), Anglo (37,000 bpd), Repetrol (9,000 bpd) and Lago Agrio (1,000 bpd), and the gas plant at Shushufindi. This is sufficient to meet internal demand and for minor exports. Its immediate priority is to improve the efficiency and augment the capacity of the Esmeraldas refinery. On several occasions CEPE invited offers to construct the Libertador gas plant, a new LPG plant with capacity of 15,000 mt, and although the contract was never awarded the project is likely to resurface.

C. PETROCOMERCIAL

This subsidiary is responsible for marketing petroleum and its derivatives on the international and domestic markets. One of the key challenges of the Ecuadorian Government, under pressure from the World Bank, is to raise the price of heavily-subsidized domestic gasoline to something approaching world market prices.

TEMPORARY SUBSIDIARIES:

A. **PETROAMAZONAS**

This subsidiary was created to take over operation of the CEPE-Texaco field in the Amazon basin which reverts to Ecuador in July 1990.

B. **PETROPENINSULA**

This subsidiary has been created to operate the Anglo and Repetrol refineries. The former, after more than thirty years of operation by Anglo, reverted to Ecuadorian ownership on December 1, 1989. Its processing capacity is 37,000 bpd for a daily gasoline production of 900,000 gallons, equivalent to 20 percent of national consumption. The refinery is made up of the Parsons unit (24,500 bpd, built in 1968), the Universal unit (10,000 bpd, operating since 1959), and the thermal cracking unit (4,000 bpd, also constructed in the late 1950s). PETROECUADOR will take over full operation of the Repetrol refinery (9,000 bpd) on August 19, 1990.

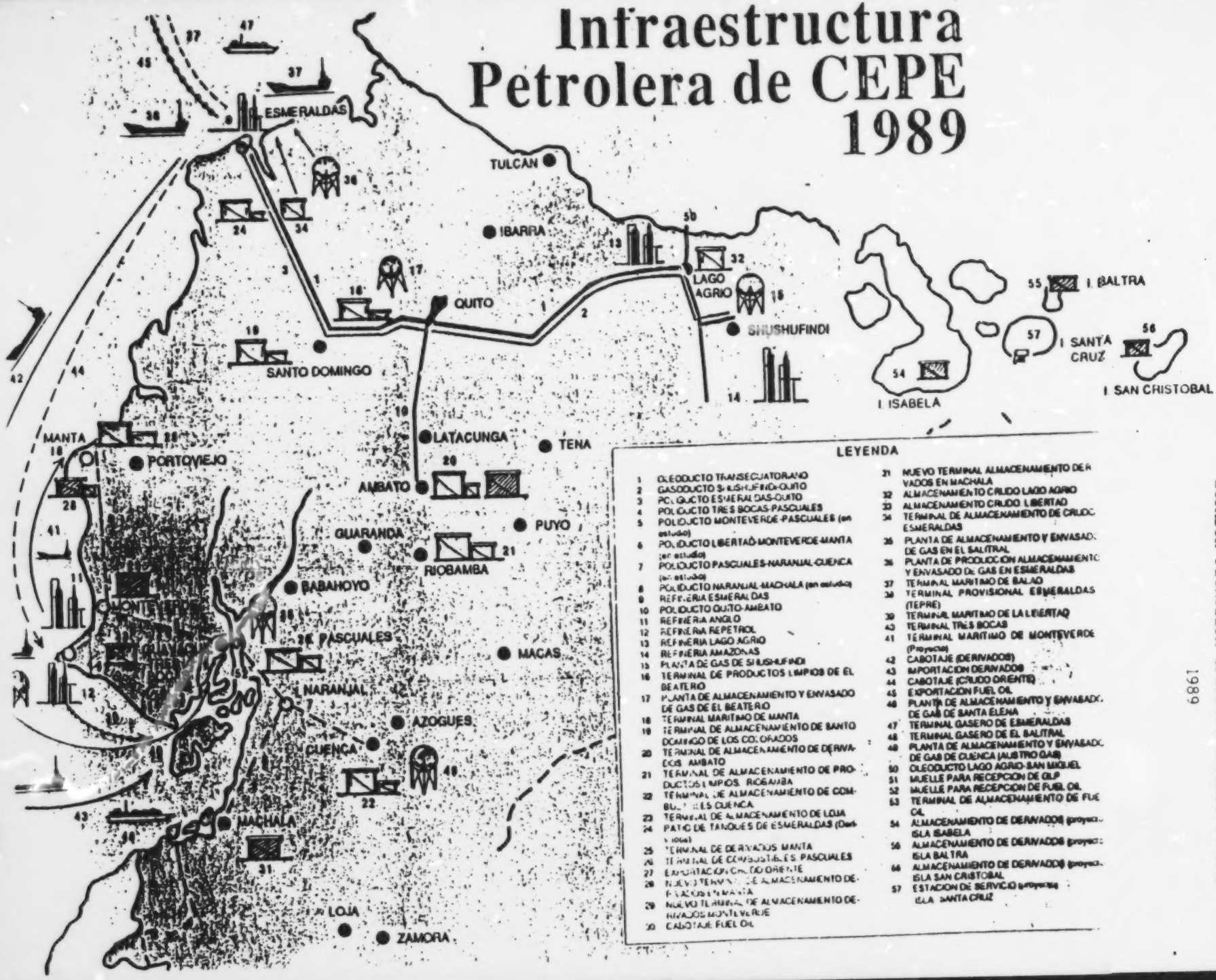
C. **PETROTRANSPORTE (TRANSECUATORIANA DE PETROLEOS)**

This subsidiary was established to operate the national pipeline system which has an extension of 1,300 km. The most important link is the 503 km Transecuadorian pipeline that runs from the Amazon basin across the Andes to the coast. Opened in 1972 and heavily damaged in the March 1987 earthquake, it was restored to its full 300,000 bpd capacity with emergency financial assistance from the World Bank. The Ecuadorian government assumed ownership of the pipeline in 1986 but contracted its operation to Texaco until October 1989. There is also a 26-km branch from Lago Agrio to San Miguel.

There are three pipelines for the transportation of petroleum derivatives (gasolines, "kerex" and diesel). The Esmeraldas-Quito pipeline is 374 km long and has a 40,000 bpd capacity; Quito-Ambato is 111 km long and transports up to 12,000 bpd; Tres Bocas-Pasquales, 22 km kong, has a 108,000 bpd capacity. In addition, there is a 304 km gas pipeline from Shushufindi to Quito, 7,200 bpd capacity.

Ecuador currently has sufficient storage capacity for crude and refined products to satisfy domestic requirements.

Infraestructura Petrolera de CEPE 1989



LEYENDA

1. OLEODUCTO TRANSECUATORIANO
2. GASODUCTO SHUSHUFINDI-QUITO
3. POLIDUCTO ESMERALDAS-QUITO
4. POLIDUCTO TRES BOCAS-PASCUALES
5. POLIDUCTO MONTEVERDE-PASCUALES (en estudio)
6. POLIDUCTO LIBERTAD-MONTEVERDE-MANTA (en estudio)
7. POLIDUCTO PASCUALES-NARANJAL-CUENCA (en estudio)
8. POLIDUCTO NARANJAL-MACHALA (en estudio)
9. REFINERIA ESMERALDAS
10. POLIDUCTO QUITO-AMBATO
11. REFINERIA ANGLO
12. REFINERIA REPETROL
13. REFINERIA LAGO AGRIO
14. REFINERIA AMAZONAS
15. PLANTA DE GAS DE SHUSHUFINDI
16. TERMINAL DE PRODUCTOS LIMPIOS DE EL BEATERIO
17. PLANTA DE ALMACENAMIENTO Y ENVASADO DE GAS DE EL BEATERIO
18. TERMINAL MARITIMO DE MANTA
19. TERMINAL DE ALMACENAMIENTO DE SANTO DOMINGO DE LOS COLORADOS
20. TERMINAL DE ALMACENAMIENTO DE DERIVADOS AMBATO
21. TERMINAL DE ALMACENAMIENTO DE PRODUCTOS LIMPIOS RIOBAMBA
22. TERMINAL DE ALMACENAMIENTO DE COMBUSTIBLES CUENCA
23. TERMINAL DE ALMACENAMIENTO DE LOJA
24. PATIO DE TANQUES DE ESMERALDAS (Desactivado)
25. TERMINAL DE DERIVADOS MANTA
26. TERMINAL DE COMBUSTIBLES PASCUALES
27. EXPORTACION CRUDO ORIENTE
28. NUEVO TERMINAL DE ALMACENAMIENTO DE PRODUCTOS EN MANTA
29. NUEVO TERMINAL DE ALMACENAMIENTO DE DERIVADOS MONTEVERDE
30. CABOTAJE FUEL OIL
31. NUEVO TERMINAL ALMACENAMIENTO DE DERIVADOS EN MACHALA
32. ALMACENAMIENTO CRUDO LAGO AGRIO
33. ALMACENAMIENTO CRUDO LIBERTAD
34. TERMINAL DE ALMACENAMIENTO DE CRUDO ESMERALDAS
35. PLANTA DE ALMACENAMIENTO Y ENVASADO DE GAS EN EL SALITRAL
36. PLANTA DE PRODUCCION ALMACENAMIENTO Y ENVASADO DE GAS EN ESMERALDAS
37. TERMINAL MARITIMO DE BALAO
38. TERMINAL PROVISIONAL ESMERALDAS (TEPRE)
39. TERMINAL MARITIMO DE LA LIBERTAD
40. TERMINAL TRES BOCAS
41. TERMINAL MARITIMO DE MONTEVERDE (Proyecto)
42. CABOTAJE (DERIVADOS)
43. IMPORTACION DERIVADOS
44. CABOTAJE (CRUDO ORIENTE)
45. EXPORTACION FUEL OIL
46. PLANTA DE ALMACENAMIENTO Y ENVASADO DE GAS DE SANTA ELENA
47. TERMINAL GASERO DE ESMERALDAS
48. TERMINAL GASERO DE EL SALITRAL
49. PLANTA DE ALMACENAMIENTO Y ENVASADO DE GAS DE CUENCA (AUSTRO GAS)
50. OLEODUCTO LAGO AGRIO-SAN MIGUEL
51. MUELLE PARA RECEPCION DE GLP
52. MUELLE PARA RECEPCION DE FUEL OIL
53. TERMINAL DE ALMACENAMIENTO DE FUEL OIL
54. ALMACENAMIENTO DE DERIVADOS (proyecto) ISLA ISABELA
55. ALMACENAMIENTO DE DERIVADOS (proyecto) ISLA BALTRA
56. ALMACENAMIENTO DE DERIVADOS (proyecto) ISLA SAN CRISTOBAL
57. ESTACION DE SERVICIO (proyecto) ISLA SANTA CRUZ

MARKET OPPORTUNITIES IN THE OIL AND GAS SECTOR

In recent years PETROECUADOR/CEPE has imported goods worth on average about US $60 million annually. All foreign currency transactions must be approved by the Central Bank and the Monetary Board. However, Ecuadorian Customs will expedite import clearances by the state oil company, if these are required urgently.

With the replacement of CEPE by the PETROECUADOR family of companies, each subsidiary gains direct responsibility for its contractual relationships, with autonomy in procurement decisions of up to half a million dollars. The payment terms assumed by each subsidiary, if self-financed, may not exceed 30 days. The contracting system is substantially altered and PETROECUADOR subsidiaries are freed from public sector bidding regulations (new rules drawn up by the Presidency of Ecuador will be substituted).

As a result of Ecuador's financial difficulties in the 1980s, PETROECUADOR and its predecessor CEPE have sought financing support from the World Bank. The Bank responded rapidly to an Ecuadorian request for emergency assistance to rebuild the main oil export pipeline damaged by the 1987 earthquake. In the latter half of 1989 it was studying an Ecuadorian request for a US $100 million energy sector adjustment loan, which if approved could begin to be disbursed as early as mid-1990.

PETROECUADOR has also received financing from the Andean Development Corporation (CAF - Corporacion Andina de Fomento), an Andean Pact entity with a mandate to finance industrial projects that will reinforce regional integration among its member countries (Bolivia, Colombia, Ecuador, Peru and Venezuela). Canadian exporters should be aware that the CAF has a US $10 million line of credit with the Export Development Corporation, which may be applied to finance Canadian goods and services used in CAF projects in any of the Andean Pact member countries, including Ecuador. More information on the mechanics of this line of credit can be obtained from the EDC in Ottawa and from the CAF regional office in Quito: Corporacion Andina de Fomento, 18 de septiembre 332, Casilla 259, Quito, Ecuador Phone: 549-814 or 563-996; Fax: 564-246; Telex: 2402 CAF ED.

PETROECUADOR investment priorities in the near future include heavy crude extraction, improving the efficiency and operation of refineries, enhancing inhouse training programs, constructing three multiuse pipelines in southern Ecuador (Libertad-Monteverde-Manta, 165 km; Monteverde-Pasquales, 115 km; and Pasquales-Naranjal-Cuenca-Machala, 291 km), improving environment protection, and expanding its secondary and assisted recovery operations.

Canadian exporters should also contact Conoco and other foreign operators regarding their goods and service import requirements.

EXPLORATION ACTIVITY

Overview: Exploration in Ecuador takes place in two main regions, the Amazon basin and the coastal area (both on land and offshore).

By the end of 1988, PETROECUADOR (CEPE), through its own activity, had added 305 million barrels of proven reserves to the national inventory, and was the owner of 69 percent of all national oil reserves. Its goal for the next five years is to incorporate an additional 400 million barrels into national reserves. Foreign oil companies have also been actively exploring in Ecuador since the mid-1980s. Their activities are reviewed below.

History of Coastal Exploration: The presence of oil was known to pre-Columbian inhabitants of the Santa Elena Peninsula, and later the Spanish used the tar to pitch their boats. However, not until the beginning of this century did exploration begin in earnest.

Two British companies, Ecuador Oilfields Limited and the Ecuador Drilling Company, were prominent in the initial exploration efforts in the Ancon area. The Ancon Oil Company, a subsidiary of the Ecuador Drilling Company, drilled the first discovery well, Ancon-1) in 1911, but soon after suspended its activities due to financial difficulties. Anglo Ecuadorian Oilfields Ltd. resumed drilling and development of the Ancon Field in 1919, thus establishing the first commercial oil production in Ecuador.

In 1940, the International Ecuadorian Petroleum Company, an ESSO subsidiary, undertook the first systematic exploration of the coastal region. This resulted in the drilling of 20 wildcat wells, 19 of which were outside the Santa Elena area. All were dry.

The Tennessee Oil & Gas Company entered the scene in 1951, followed in 1954 by the California Oil Company. Two wells drilled offshore from the Ancon area, South Ancon-1 and Golfo-1, were dry. Exploration activities reached a peak in 1964 when 34 wells were drilled by companies in the coastal region. Adobe Oil Co. acquired an offshore concession in 1969, and drilled two dry holes. Also in 1969, Quintana acquired an offshore concession on the Manabi coast and drilled the Caraquez-1 hole which turned out dry.

In 1968 six leases comprising some 14,000 square km in the Gulf of Guayaquil (including Puná Island) and the Guayas river estuary were awarded to the ADA Consortium. Nine wells were drilled, one onshore and 8 offshore, resulting in the discovery of the Tertiary Amistad gas field (about 200 BCF). The contract with the ADA group was revoked by the Ecuadorian government in November 1972.

Since 1985 coastal exploration has been reactivated with the awarding of two offshore blocks to Belco and one onshore block to Texaco-Pecten in the Manabi basin.

History of Amazon Basin Exploration: Hydrocarbons seeps and asphalt from sandstone outcrops along the Hollin River have been known since 1852. In 1921 the Leonard Exploration Company undertook the first serious exploration in the eastern Oriente region (or upper Amazon basin). This activity was followed by a request from the Anglo-Saxon Petroleum Company (Shell) in 1937 for a concession covering most of the Oriente. In 1948 the Standard Oil Company (Esso) joined Shell, but withdrew in 1950 after drilling only a few wells due to a lack of commercial success.

Interest was spurred anew in 1963 by Texaco's Orito Field discovery in the neighbouring Putumayo Basin of Colombia. Texaco, in partnership with Gulf, obtained a 14,000 sq. km concession south of the Colombian border. In 1964, a seismic program was conducted and drilling activities started in 1967 with three oil discoveries: Lago Agrio-1, Bermejo-1 and Charapa-1. Lago Agrio-1 tested 1,241 barrels per day (bpd) of 34° API gravity from Napo "U" sands, and 1,399 bpd of 29.3° API from Hollin. Soon afterwards it was developed as a commercial field. In 1968 the Atacapi and Parahuacu fields were discovered, followed in 1969 by Shushufindi, Aguarico and Sacha and in 1970 by the Auca and Yuca discoveries, an impressive success rate. Thus, some 2,175 million barrels were added to Ecuador's oil reserves in less than three years.

Following Texaco-Gulf's success in its first year of wildcat drilling, more and more companies acquired acreage in the Oriente with mixed results. Anglo Ecuadorian Oil Fields Ltd. picked up six blocks in 1963 and drilled 10 wells with no commercial success. The most significant find was Tiguino-1 which tested 1,350 bpd of 32° API from the Hollin formation.

In 1968, the Compañia Petrolera del Pacifico was awarded a concession of 3,300 sq. km in east central Oriente, where it drilled the Tangay-1 dry hole and the successful Pañacocha-1 (1140 bpd of 30° API from the Napo "T" sand).

Cayman Corp., operating for investors including City Investing (55 percent) and Southern Union (25 percent) was awarded 3,500 sq. km of acreage relinquished by Texaco-Gulf in the northeastern Oriente. In 1971-72, Cayman made three discoveries: Fanny-1 (2,166 bpd), Marianne-1 (2,830 bpd) and Vinita-1 (1,260 bpd).

Increasingly nationalistic attitudes on the part of the Ecuador government reflected negatively in exploration activity. In 1975-76, Cayman and Southern Union left Ecuador and City Investing acquired control of their acreage operating as CEPCO (City Ecuatoriana Production Company). In 1982, City sold its interest to Clyde Petroleum Ltd. Along with Texaco, it was the sole foreign company active in Ecuador at that point.

Amendments to the Hydrocarbons Law in 1983 ushered in a new era of

foreign exploration through service supply contracts with CEPE, the state oil company. CEPE was still encouraged to work on its own, but with the option of establishing association contracts or service supply contracts with foreign oil companies. CEPE signed thirteen service supply contracts up to 1989, two of which are for offshore exploration, one for the coastal mainland, and the remaining ten for exploration and exploitation in the Oriente.

Belco, British Petroleum, Conoco-Opic-Diamond Shamrock-Nomeco, Esso-Hispanoil, Occidental and Texaco-Pecten all signed up with CEPE in 1985-86. Two more rounds of bidding, one of which was limited to state oil companies, took place in 1986, the winners being Fred Parks Inc., Tenneco-Diamond-Yukong-CSX-Maersk, Petro-Canada, Elf-Braspetro-YPF and Braspetro-Elf-Britoil.

PETROECUADOR opened a sixth round of international tenders for four new blocks in the Amazon basin and three on the coast in January 1990. The exploration and exploitation phases of most existing contracts (see list below) expire in 1990 or 1991.

Service Supply Contracts: Under these contracts, risks in the initial phases of seismic research and exploration are assumed solely by the operator. The exploration period is normally four years, extendable for two more years, usually if the operator has made a discovery in the last year of the normal exploration period. This total of six years may be further extended with the consent of PETROECUADOR (CEPE). In this case, the corporation would probably insist that the operator present a new drilling program for the extension to be approved.

In order for a block to be declared commercial, the operator must demonstrate that the potential revenues will cover costs plus a 15 percent profit margin. Once a block has been declared commercial, the operator is reimbursed for exploration expenses over five years according to the terms previously established by the National Hydrocarbons Directorate.

The exploitation stage may last up to 20 years and reimbursements to the operator for the expenses carried out during this phase may be paid over 10 years. Interest rates are fixed, using the original investment amount as a reference and according to the prime rate in effect at the moment. PETROECUADOR (CEPE) also reimburses the operator for transportation and operating costs on a monthly basis. A service rate for the operation of the fields is also provided by PETROECUADOR (CEPE).

The terms of each contract may vary, and are subject to taxes as provided for under Ecuadorian law. Since the new service supply regime came into effect, investments by foreign oil companies for the initial exploration phases has reached US $428 million (including additional investments made by CONOCO and BP after successful discoveries).

EXPLORATION/EXPLOITATION CONTRACTS BETWEEN PETROECUADOR (CEPE) AND FOREIGN COMPANIES

As noted above, PETROECUADOR (CEPE) had negotiated thirteen service supply contracts with foreign oil companies at the time of writing, involving 2,200,000 hectares on land and 800,000 hectares offshore. Exploration commitments cover 18,463 km of seismic exploration.

PETROECUADOR (CEPE)-BRITISH PETROLEUM

Block no. and location:	Block no.7 - Amazon
Length of seismic lines contracted:	1100 km
Length of seismic lines achieved:	1103 km
Number of wells drilled:	5 exploration wells, 2 advanced wells
Initial investment programmed:	US $29,480,000
Date contract ends:	January 17, 1990
Additional information:	Production now being examined for commercial prospects.

NOTE: BP sold its right to this block to Oryx Energy Co. in October 1989.

PETROECUADOR (CEPE)-BRASPETRO

Block no. and location:	Block no. 17 - Amazon Basin
Length of seismic lines contracted:	1150 km
Length of seismic lines achieved:	920 km
Number of wells drilled:	None
Initial investment programmed:	US $30,630,000
Date contract ends:	May 26, 1991

PETROECUADOR (CEPE)-ELF AQUITAINE

Block no. and location:	Block no. 14 - Amazon Basin
Length of seismic lines contracted:	800 km
Length of seismic lines achieved:	1212 km
Number of wells drilled:	4 exploration wells, plus 1 additional
Initial investment programmed:	US $37,835,000
Date contract ends:	May 29, 1991

PETROECUADOR (CEPE)-CONOCO

Block no. and location:	Block no.16 - Amazon Basin
Length of seismic lines contracted:	1500 km
Length of seismic lines achieved:	2634 km
Number of wells drilled:	5 exploration wells, and 2 advanced wells
Initial investment programmed:	US $44,064,000
Date contract ends:	February 7, 1990
Additional information:	In 1989 CONOCO declared some of its wells commercial.

PETROECUADOR (CEPE)-TENNECO

Block no. and location:	Block no. 12 - Amazon Basin
Length of seismic lines contracted:	1108 km
Length of seismic lines achieved:	1100 km
Number of wells drilled:	2 wells
Initial investment programmed:	US $29,698,000
Date contract ends:	June 23, 1991
Additional information:	British Gas has purchased Tenneco Oil.

PETROECUADOR (CEPE) - PETRO-CANADA

Block no. and location:	Block no.9 - Amazon
Length of seismic lines contracted:	500 km
Length of seismic lines achieved:	911 km
Number of wells drilled:	one
Initial investment programmed:	US $10,403,000
Date contract ends:	July 15, 1991

PETROECUADOR (CEPE)-UNOCAL

Block no. and location:	Block no.13 - Amazon Basin
Length of seismic lines contracted:	1500 km
Length of seismic lines achieved:	232 km
Number of wells drilled:	First exploratory well planned for December '89
Initial investment programmed:	US $58,000,000
Date contract ends:	July 1, 1992
Additional information:	The program includes 7 exploratory wells.

PETROECUADOR (CEPE)-ARCO

Block no. and location:	Block no.10 - Amazon Basin
Length of seismic lines contracted:	1200 km
Length of seismic lines achieved:	79 km
Number of wells drilled:	None
Initial investment programmed:	US $16,132,000
Date contract ends:	July 15, 1992
Additional information:	The program includes only one exploratory well.

PETROECUADOR (CEPE)-OCCIDENTAL

Block no. and location:	Block no.15 - Amazon Basin
Length of seismic lines contracted:	
Length of seismic lines achieved:	1424.15 km
Number of wells drilled:	4 exploration wells
Initial investment programmed:	US $39,445,000
Date contract ends:	February 12, 1991
Additional information:	This contract was extended for two years as of February 13, 1989.

PETROECUADOR (CEPE)-ESSO HISPANOIL

Block no. and location:	Block no. 8 - Amazon Basin
Length of seismic lines contracted:	1000 km
Length of seismic lines achieved:	1068 km
Number of wells drilled:	2 exploration wells
Initial investment programmed:	US $30,011,000
Date contract ends:	April 9, 1989

PETROECUADOR (CEPE)-BELCO

Block no. and location:	Block no.1 - Offshore (off Guayas Province)
Length of seismic lines contracted:	
Length of seismic lines achieved:	All offshore contracted plus an additional 124 km inland
Number of wells drilled:	2 exploration wells
Initial investment programmed:	US $8,856,000
Date contract ends:	July 25, 1989
Additional information:	Belco requested a two-year extension of this contract.

PETROECUADOR (CEPE)-BELCO

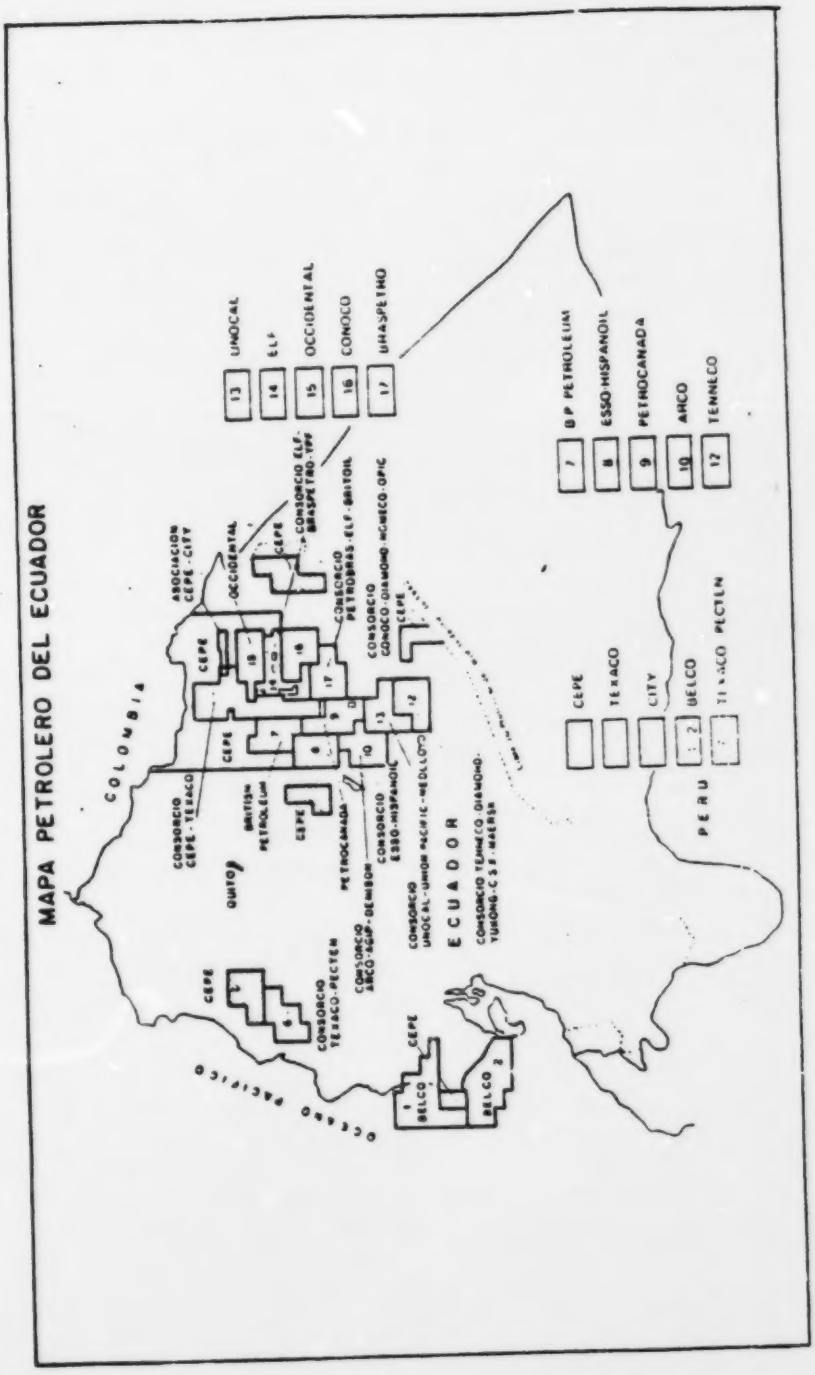
Block no. and location:	Block no. 2 (Off Santa Elena Bay)
Length of seismic lines contracted:	
Length of seismic lines achieved:	All contracted
Number of wells drilled:	5 exploration wells
Initial investment programmed:	US $15,336,000
Date contract ends:	September 13, 1989
Additional information:	The operator did not achieve the target of eight exploratory wells in 1987, and exploration was suspended on September 13, 1988.

PETROECUADOR (CEPE)-TEXACO/PECTEN

Block no. and location:	Block no.6 Coastland (Manabi Province)
Length of seismic lines contracted:	1200 km
Length of seismic lines achieved:	895 km
Number of wells drilled:	3 exploration wells
Initial investment programmed:	US $23,408,000
Date contract ends:	November 28, 1989
Additional information:	Through an addendum to the contract, 305 km of seismic lines to be explored in 1988 may be replaced by the equivalent in cost (US $) of additional drilling.

N.B. Date of end of contract applies to the exploration phase.

OIL BLOCKS AT THE END OF 1989



HOW TO DO BUSINESS IN THE OIL AND GAS SECTOR

STEP A: CHOOSING A RELIABLE LOCAL AGENT

Foreign companies are required to have a legal representative or local agent to do business with PETROECUADOR and its subsidiaries.

The Canadian Consulate in Quito maintains regular contact with agents in this sector and may assist in the selection process. A list of potential agents is provided at the end of this report.

STEP B: REGISTRATION WITH PETROECUADOR

Companies interested in supplying equipment and/or services to PETROECUADOR should be registered in the appropriate supplier and/or contractor index. Normally only registered companies receive specifications and invitations to bid.

STEP C: PATIENCE, FOLLOW-UP AND PERSISTENCE

The Ecuadorian petroleum sector market cannot be penetrated overnight. Competitors, many from the United States, are deeply entrenched and difficult to displace. Patience and a long-term commitment to this market are essential prerequisites for success. Your agent should receive appropriate support to promote your products or services on your behalf. It is not unusual for a first sale to come only after many months or several years of sustained promotion and repeated visits to potential clients. Inform yourself about financing support available from the Export Development Corporation, World Bank or Andean Development Corporation (CAF - see above).

You should also keep government contacts (including the Canadian Consulate, the local International Trade Centre, and provincial government trade development officers) informed of your interests and sales strategy so they can offer you maximum support with sectoral intelligence and by inviting your firm to participate in marketing programs such as missions, incoming visits, etc. in this sector.

All market entry avenues should be explored. These include joint ventures and technology transfer agreements, for which you may be eligible for support from the Canadian International Development Agency Industrial Cooperation Program.

SOME IMPORTANT GOVERNMENT CONTACTS:

South America Trade Development Division
Department of External Affairs
125 Sussex Drive, Ottawa, Ontario K1A 0G2
Phone: 613-996-5546

Machinery and Transport Equipment Division
Department of External Affairs
125 Sussex Drive, Ottawa, Ontario K1A 0G2
Phone: 613-996-0670

Energy Equipment Division
Department of Industry, Science and Technology
235 Queen St., Ottawa, Ontario K1A 0H5
Phone: 613-995-3951

South America Department
Export Development Corporation (EDC)
151 O'Connor St., Ottawa, Ontario K1P 5T9
Phone: 613-598-2955

Industrial Cooperation Program
Canadian International Development Agency
200, Promenade du Portage, Hull, Québec K1A 0G4
Phone: 819-997-0541

International Trade Centre, Government of Canada
Suite 630, Harry Hays Bldg., 220 - 4th Ave. S.E.
Calgary, Alberta T2P 3C3
Phone: 403-292-4575 Fax: 403-292-4578

International Trade Centre, Government of Canada
Suite 450, Canada Place, Edmonton, Alberta T6J 4C3
Phone: 403-495-4415 Fax: 403-495-4507

International Trade Centre, Government of Canada
4th Floor, Dominion Public Bldg., 1 Front St. W.
Toronto, Ontario M5J 1A4
Phone: 416-973-5052 Fax: 416-973-8161

International Trade Centre, Government of Canada
800, Place Victoria, 38e etage, Montreal, Quebec H4Z 1E8
Phone: 514-283-8791 Fax: 514-283-3302

Trade Development Division
Department of Economic Development and Trade
Government of Alberta
11th Floor, Sterling Place, 9940-106 St.
Edmonton, Alberta T5K 2P6
Phone: 403-427-4809

ANNEX A: OIL COMPANIES OPERATING IN ECUADOR

BELCO PETROLEUM INC. (DEL ECUADOR):
General Córdova 808
Guayaquil, Ecuador
Phones: 308-800/314-859
Tlx. 42703 BELCO ED

CONOCO: Avenidas Amazonas 3655 y Catalina Herrera
Edificio Antisana
Quito, Ecuador
Phones: 437-720/244-142
Tlx. 21312 CONECU ED 21141 CONOCO ED

ELF-AQUITAINE:
Avenida Amazonas 3655 y Atahualpa
Edificio Antisana 1
Quito, Ecuador
Phones: 432-717/432-564
Tlx. 21311 ELFAEQ ED

FRED PARKS:
Avenidas Eloy Alfaro 1210 y Ave. La República
Oficina 202-A
Quito, Ecuador
Phones: 458-374/550-672
Tlx. 21104 OFISNA ED

OCCIDENTAL (OXY):
Avenida Amazonas 477
Edificio Banco de los Andes Of. 517
Quito, Ecuador
Phones: 553-695/528-805
Tlx. 22061 OXY ED

PETROBRAS:
18 de Septiembre y Juan León Mera Of. 603
Quito, Ecuador
Phone: 522-438
Tlx. 21019 INTERQ ED

PETROCANADA:
Avenidas Patria y Amazonas
Edificio Cofiec 4th Floor
Quito, Ecuador
Phones: 528-543/568-367/68/69
Tlx: 21419 PECAN ED
Fax: (5932) 568-518

TENNECO: Avenidas Patria y Amazonas
Edificio COFIED 7th Floor
Quito, Ecuador
Phones: 561-431/566-129
Tlx. 21381 TENNECO ED

TEXACO: Avenida 6 de Diciembre 2816 y J. Orton
Quito, Ecuador
Phones: 563-913/564-664
Tlx. 22725 TEXACO ED or 22225 TEXACO ED

UNOCAL: Avenida República 481 y Diego de Almagro
Quito, Ecuador
Phones: 503-388/503-390
Tlx. 21408 UNOCAL ED

ANNEX B: GAS COMPANIES IN ECUADOR

AUSTROGAS CIA DE ECONOMIA MIXTA:
Avenida Hayna-Capac 6-15
Cuenca, Ecuador
Phone: 800-825
Tlx. 48512 AUSGAS ED

AUTOGAS S.A.:
Avenida 10 de Agosto 7168 y El Inca
Quito, Ecuador
Phone: 235-713
Tlx. 21406 AUGAS ED

COMPAÑIA NACIONAL DE GAS (CONGAS):
Avenida 12 de Octubre 1721 y Baquerizo
Quito, Ecuador
Phones: 520-790/614-216
Tlx. 21163 CONGAS ED

DURAGAS:
Panamericana Sur Km. 5
Quito, Ecuador
Phones: 266-334/263-877
Tlx. 21366 DURGAS ED

LIQUIGAS S.A.:
Avenidas Patria y Amazonas, Esq.
Edificio Cofiec 9th floor
Quito, Ecuador
Phone: 544-300
Tlx. 22143 LIQGAS ED
Fax 564-781

SHELLGAS S.A.:
Urd. Centro Com Las Lomas
Guayaquil, Ecuador
Phone: 382-447

ANNEX C: PRINCIPAL AGENTS/DISTRIBUTORS

NOTE: PLEASE CONTACT THE CANADIAN CONSULATE IN QUITO FOR MORE DETAILED INFORMATION ON AGENTS AND THEIR SPECIALIZATIONS.

ARIAS, FRANCISCO:
Eco. Francisco Arias
Josueth Gonzalez
Av. 6 de Diciembre y James Orton
Edificio Josueth González
Quito, Ecuador
P.O. Box 4870 CCI, Quito
Tel: 525-500
Telex 22653 JOLEZ ED

COSULPEC:
Ing. Freddy Checa
Robles 653 y Amazonas - Room 410
Quito, Ecuador
Tel: 234-505, 236-440
Telex: 22639 FERNAN-ED

FERROACERO CIA. LTDA.:
Ing. Ernesto Ribadeneira P.
Director Comercial
Av. Atahualpa 1116 y Av. Amazonas
Edif. Perez Pallares - 3th fl., Room 3A
P.O. Box 1407-A
Quito, Ecuador
Tel: 456-803, 459-627
Telex 22727 DEIHKQ ED

FROIL PETROLERO Y TECNOLOGÍA S.A.:
Ing. Fausto Andrade
Suecia 277 y Avda. de los Shyris
Quito, Ecuador
Tel: 451-441

INTRADE:
Dr. Gonzalo Cevallos
La Rábida 169
Quito, Ecuador
Tel: 523-449
Telex 22140 IETEL ED

MARKAROL CIA. LTDA.:
Lcdo. Patricio Martinez
Avda. Amazonas 477 y Roca. Room 204
Quito, Ecuador
Edif. Banco de los Andes
Tel: 542-106
Telex 22383 TOMENQ ED

MINGA OILFIELD
Sr. Leonard Schorsch
Presidente
Av. República del Salvador 525
Quito, Ecuador
Tel: 459-232/233/636
Telex 22403 MINGA ED

NALQUÍMICA DEL ECUADOR:
Ing. Edgar Larrea
Panamericana Norte, Km 5 1/2
Calle las Aceitunas
Quito, Ecuador
Tel: 539-155, 538-631
Telex 22723

PACICOM:
Sr. Fernando Justicia
P.O. Box 9160 - Suc 7
Quito, Ecuador
Tel: 232-859, 235-736
Telex 21055 FEJUS ED

PETROLEOS SUMMA PET CIA. LTDA.:
Ing. Roberto Abedrabbo
Avda. González Suárez 318
Quito, Ecuador
Tel: 527-478, 541-613
Telex 22384 ILINIS ED

SERVOIL:
Ing. Oscar Garzón
Avds. Patria y 10 de Agosto
Edif. Banco de Préstamos 15th fl.
Quito, Ecuador
Tel: 541-899
Telex 22111 ECOMEB ED

SIPETROL:

Ing. Edwin Teran
Avda. 6 de Diciembre 2816 y James Orton
Edificio Josueth González 2nd Fl.
Quito, Ecuador
Tel: 548-362, 520.460
Telex 22343 LLAVEQ ED

SOTECO:

Dr. Wilson Granja
Avda. Eloy Alfaro 939 y Amazonas 4th fl.
Quito, Ecuador
Tel: 552-050, 552-150
Telex 22274 SOTECO ED

TECNIE:

Ing. Hector Paz y Minño
Veintimilla 910 y Juan León Mera
Edif. Wanderberg, 5th fl.
Quito, Ecuador
Tel: 545-468

JOSÉ ZURITA & ASOCIADOS:

Sr. José Zurita, Gerente
Av. Amazonas y Veintimilla
Edif. Espinosa, Room 403
Quito, Ecuador
Tel: 543-380, 231-951
Telex 21101 METCON ED

ANNEX D: PRINCIPAL OFFICERS OF PETROECUADOR

NOTE: Many of the new officers of PETROECUADOR had not been confirmed at the time of writing. The Canadian Consulate in Quito will provide the current list of PETROECUADOR officials upon request, and will include it in an updated edition of this report before the end of 1990.

TABLE A: PETROECUADOR (CEPE) OIL PRODUCTION (BARRELS)

	1983	1984	1985	1986	1987
CEPE-TEXACO	47,908,595	50,883,597	53,739,157	52,774,980	31,092,454
ASOC-CITY	303,334	355,012	382,251	475,124	339,020
CEPE(AMAZONIA)	8,038,938	11,574,085	14,422,175	18,887,386	12,397,557
CEPE (COAST)	277,316	417,085	438,017	412,302	369,136
TOTAL (a)	56,528,183	63,229,779	68,981,600	72,549,792	44,198,167

TABLE B: OIL PRODUCTION - OTHER COMPANIES

TEXACO	28,745,157	30,530,158	32,243,493	31,664,986	18,655,469
CITY	1,071,740	1,168,959	1,196,478	1,370,231	931,857
TOTAL (b)	29,816,897	31,699,117	33,439,971	33,035,217	19,587,326
TOTAL (a + b) PRODUCTION	86,345,080	94,928,896	102,421,571	105,585,009	63,785,493

TABLE C: GAS PRODUCTION PER COMPANY (IN THOUSAND SQ.FT.)

	1983	1984	1985	1986	1987
CEPE-TEXACO	13,721,661	13,268,102	14,041,543	14,733,542	9,042,458
CEPE-CITY	165,877	181,867	207,841	227,810	208,280
CEPE(NORTH EAST)	2,253,940	3,621,573	7,173,498	9,943,000	5,928,275
CEPE (COAST)	873,493	899,548	831,732	1,038,036	1,091,090
TOTAL	17,014,971	17,971,090	22,254,614	25,942,388	16,270,103